

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF THE CLAIMS

1. (Currently Amended) A protein-based film comprising a protein network formed by disulfide bonds between modified proteins and unmodified ~~the proteins,~~ wherein the network contains from about 2 to about 4 free sulfhydryl groups per protein ~~comprising a protein network which has been formed by treating proteins with modified protein in a solution, which protein has been modified by cleaving at least one disulfide bond originally present in said protein by sulfitolysis to obtain free sulfhydryl groups, whereupon an interchange reaction by said free sulfhydryl groups has occurred forming said disulfide bonds between the proteins, wherein the pH of said solution was 7 or below.~~

2. (Previously Presented) A protein-based film of claim 1, wherein said film has been formed without heat treatment.

3. (Cancelled).

4. (Currently Amended) The protein-based film of claim 1 wherein said modified protein comprises whey protein, ~~such as the soluble fraction of~~ modified whey protein, ~~or the precipitate fraction of modified whey protein,~~ or combinations thereof.

5. (Currently Amended) The protein-based film of claim 1 wherein said modified protein has been sulfonated ~~by said sulfitolysis~~ by contacting it with a sulfite ion forming agent ~~selected from the group consisting of,~~ ~~such as an~~ alkali metal sulfite, ~~an~~ ~~earth~~ alkali earth metal sulfite, a hydrogen sulfite, ~~or a hydrogen~~ metabisulfite, ~~or~~ and combinations thereof.

6. (Withdrawn) The protein-based film of claim 1 wherein the film further contains at least one of a strength-improving agent, such as carbohydrate, such as maltodextrin or other starch hydrolysate;

a plasticizer or lipophilic compound, such as stearate, butter fat as oil or true oil or combinations thereof; and,

a pigment dye, such as titanium oxide, antiadhesive agent, antimicrobial agent or preservative agent.

7. (Withdrawn) The protein-based film of claim 6, wherein said film remains substantially intact in 0.1 M HCl (pH 2) at 37 °C for at least 6 hours before dissolving.

8. (Withdrawn) The protein-based film of claim 6, wherein said film remains substantially intact in 0.1 M HCl (pH 2) containing 0.1% pepsin at 37 °C for at least 30 minutes before dissolving.

9. (Cancelled).

10. (Cancelled).

11. (Currently Amended) The protein-based film of claim 1 wherein said film has been formed on a substance ~~to coat the substance~~.

12. (Previously Presented) The protein-based film of claim 11, wherein said substance is a food product.

13. (Currently Amended) The protein-based film of claim 11, wherein said substance is a tablet, granule, pellet ~~or the like~~, or liposome containing therapeutically active agent.

14. (Previously Presented) The protein-based film of claim 1 wherein said film has been formed as a capsule shell.

15. (Previously Presented) The protein-based film of claim 1 wherein said film has been formed around lipid, oil, lipophilic compound or combinations thereof to form an emulsion or microcapsule.

16. (Currently Amended) A food product, ~~characterized in~~ that has been coated with or contains substances coated with a film of claim 1.

17. (Withdrawn) A baby's milk formula, characterized in that it contains film of claim 6 as an emulsion.

18. (Previously Presented) A pharmaceutical product containing at least one therapeutically active agent, characterized in that has been coated with a film of claim 1.

19. (Currently Amended) A container ~~characterized in~~ that has been coated with the film of claim 1.

20. (Currently Amended) Method for preparing a protein-based film comprising a protein network formed by disulfide bonds between the proteins, comprising

providing an amount of protein solution which contains unmodified protein;
modifying the protein containing modified protein, which has been modified by cleaving
at least one disulfide bond originally present in the unmodified said protein by contacting
the unmodified protein with a sulfite ion forming agent ~~sulfite~~ lysis to obtain free
sulfhydryl groups, which are able to cause an interchange reaction ~~for~~ and form disulfide
bonds between the proteins, and

forming ~~said protein-based film from said solution into said protein-based film~~, wherein the ~~pH of said solution is~~ has a pH of 7 or below and wherein the sulfite ion forming agent is selected from the group consisting of an alkali metal sulfite, an alkali earth metal sulfite, a hydrogen sulfite, a hydrogen metabisulfite, and combinations thereof.

21. (Previously Presented) The method of claim 20, comprising forming said film without heat treatment.

22. (Previously Presented) The method of claim 20 wherein the amount of the free sulfhydryl groups in the total protein of the solution before the interchange reaction is 0.5-60 $\mu\text{mol/g}$ protein.

23. (Cancelled).

24. (Cancelled).

25. (Currently Amended) The method of claim ~~24~~20, wherein the amount of sulfite used is 0.01-0.06% (w/v).

26. (Currently Amended) The method of claim 20 wherein said modified protein comprises whey protein, ~~such as the soluble fraction of modified whey protein~~ or the precipitate fraction of modified whey protein, or combinations thereof.

27. (Withdrawn) The method of claim 20 including further adding at least one of a plasticizer or lipophilic compound, such as stearate, butter fat as oil or true oil, or combinations thereof;

a strength-improving agent, such as carbohydrate, such as maltodextrin or other starch hydrolysate; and

a pigment dye, such as titanium oxide, antiadhesive agent, antimicrobial agent or preservative agent.

28. (Cancelled).

29. (Cancelled).

30. (Currently Amended) The method of claim 20 including forming the film on a substance ~~to coat the substance~~.

31. (Previously Presented) The method of claim 30, wherein said substance is a food product.

32. (Currently Amended) The method of claim 30, wherein said substance is a tablet, granule, pellet or ~~the like~~ liposome containing therapeutically active agent.

33. (Previously Presented) The method of claim 20 including forming the film as a capsule shell.

34. (Previously Presented) The method of claim 20 including forming the film around lipid, oil, lipophilic compound or combinations thereof to form an emulsion or microcapsule.